T-solution Leader in Electrics & Automation

Starvert iV5

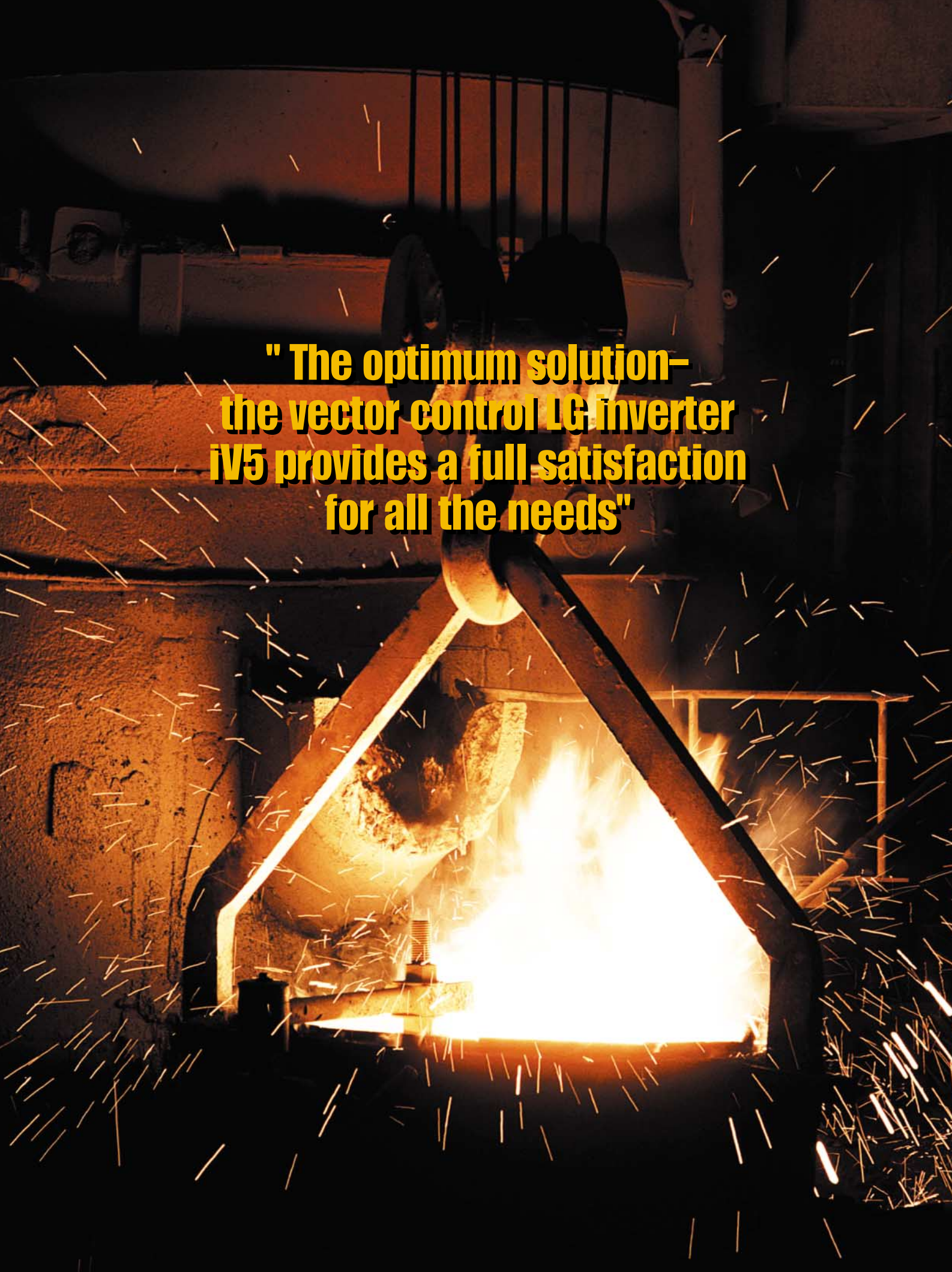
High precision &Torque Control
LG Vector Inverter

5.5~55kW 3 Phase 200~230V, 5.5~220kW 3 Phase 380~460V

Electric Equipment

LG Industrial Systems

www.lgis.com


" The optimum solution–
the vector control LG inverter
iV5 provides a full satisfaction
for all the needs"

The optimum solution brings the optimum capability of LG inverter iV5.
By realizing the high precision vector control in entire operational area, the high precison speed control and elevator control of iV5 guarantee the superb control stability.
"Your satisfaction will be more than your expectation"

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" LG inverter iV5 series features
the versatile and user-friendly
interface and extended
functional innovation.
LG inverter is being evolved
through LG's state-of-the-art
technologies from now on"

LG Inverter iV5 Series

Auto Tuning

In the area where requires a high torque at low speed, the motor's constant number should be precisely inputted for optimum running of inverter. The auto tuning function of iV5 enables a precise setup of motor's constant number

■ **Standstill Type Auto Tuning**

This unique technology of LG allows the Auto tuning function becomes possible even a load is being connected so that in case of the Elevator, Auto tuning can be processed without disassembling the motor coupling(ie; gear, belt, chain etc).

■ **Rotational Auto Tuning (General Auto Tuning)**

Rotational Auto tuning is a general format of the Auto tuning of the vector control inverter so, the coupling shoud be disassembled from the motor

- Hard to measure the motor constant number
- Torque lacking in low speed
- Requires an expert's measurement
- Parameter input error
- Motor speeds down when the load is changed

Improved

- Parameter setup does not require any specific knowledge
- Detecting the accurate characters of motor
- Torque improvement in low speed
- Optimum motor controlling

Various communication interfaces

iV5 provides various communication interfaces such as RS485, Devicenet, Profibus-DP and Modbus-RTU.

When the LG PLC is used as central controller the interfacing job is simplified.

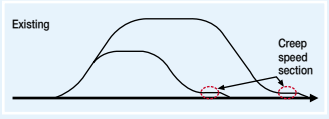
I/O Extention board: ENC_DIV, DIAO, ELIO

The encoder-dividing option card(ENC_DIV) supports the open collector type encoder and it divides the encoder pulse at 1/128.

The digital input card(DIAO)makes the frequency commands by PLC or other upper level controllers' digital relay outputs.

In case of using the ELIO board, the elevator application program is supported from inverter by which the elevator can perfrom an optimized operation.

Applied the Optimum Elevator Speed Pattern



■ **Multi-step Speed Control**

Concept :

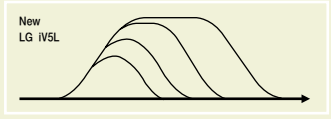
- Both speed acceleration and deceleration generate the S shaped speed pattern with time basis which stops the elevator car at the targetted floor.

Charateristic Feature:

- Relatively small signal volume is needed to move and stop the elevator car

Weakness:

- The time basesd speed deceleration changes the speed control feature depending on the car(load) so that the creep speed sections should exisist and then it decreses the efficiencies of the elevator running.



■ **Speed Acc/Deceleration Stop Control in Distance .**

Concept :

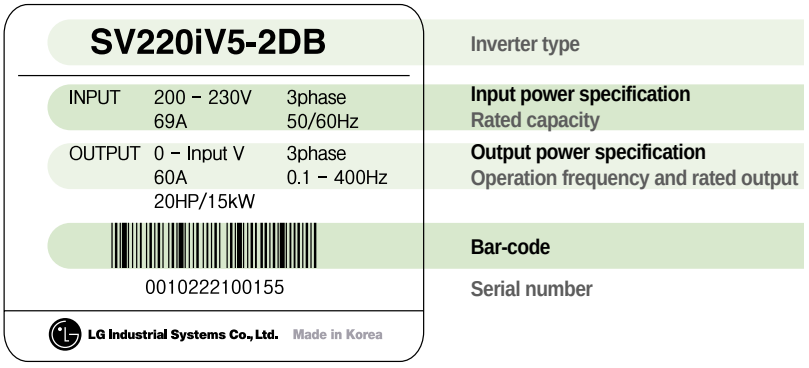
- The pulse-encoder calculates the current position of elevator and generates a optimum speed pattern and also it calculates the possible car-stop distance. Once the speed deceleration signal is allowed from main control part, the inverter starts its speed deceleration from current position to the target floor. At the time of deceleration, the inverter perceives the remaining distance and calculates it. This new technology results in a optimized speed deceleration efficiency.

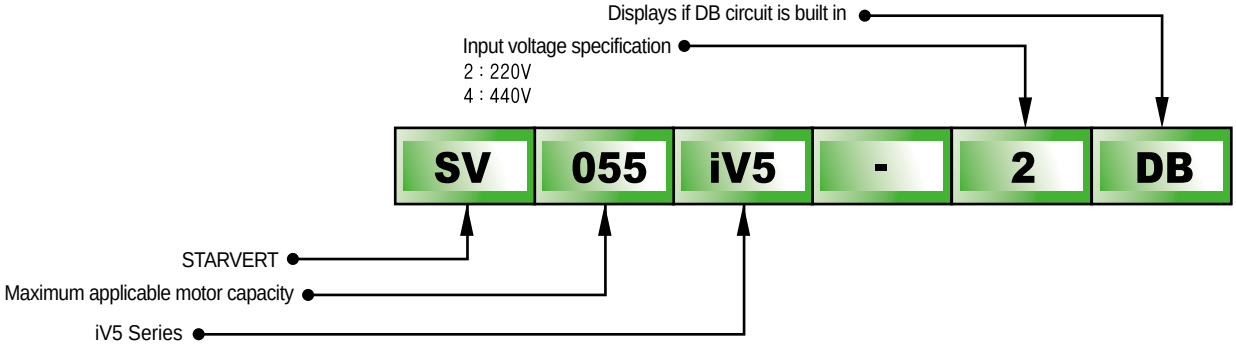
Charateristic Feature:

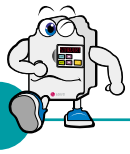
- Floor high/low check up is essential
- As car stopping at below maximum speed without finding the creep section is possible, the operation efficiency is increased.
- Speed deceleration by calculating remaing distance.
- Passing inductor plate calibration
- Stop position accuracy enhancement
- The protective signal improves the reliability and saety of elevator

Model & Type

Applicable Motor ranges	200V Series	400V Series
5.5kW (7.5HP)	SV055iV5-2DB	SV055iV5-4DB
7.5kW (10HP)	SV075iV5-2DB	SV075iV5-4DB
11kW (15HP)	SV110iV5-2DB	SV110iV5-4DB
15kW (20HP)	SV150iV5-2DB	SV150iV5-4DB
18.5kW (25HP)	SV185iV5-2DB	SV185iV5-4DB
22kW (30HP)	SV220iV5-2DB	SV220iV5-4DB
30kW (40HP)		SV300iV5-4
37kW (50HP)		SV370iV5-4
45kW (60HP)		SV450iV5-4
55kW (75HP)		SV550iV5-4
75kW (100HP)		SV750iV5-4
90kW (120HP)		SV900iV5-4
110kW (150HP)		SV1100iV5-4
132kW (175HP)		SV1320iV5-4
220kW (300HP)		SV1600iV5-4
		SV2200iV5-4







Standard Specification

■ 200V Class Specifications

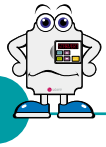
Type : SV[ ][ ][ ]iV5-2(DB)		055	075	110	150	185	220	300	370
Maximum applicable	[HP]	7.5	10	15	20	25	30	40	50
motor ranges * Note1)	[kW]	5.5	7.5	11	15	18.5	22	30	37
Rated output	Capacity[kVA] * Note2)	9.1	12.2	17.5	22.5	28.2	33.1	46	55
	Rated current [A]	24	32	46	59	74	87	122	146
	Output frequency	0 ~ 360Hz (V/F control): 90kW							
	Output speed	0 ~ 3600rpm (Vector control)							
	Output voltage	200 ~ 230V * Note3)							
Rated input	Voltage	3 ø 200 ~ 230V (-15% ~ +10%)							
	Frequency	50 ~ 60Hz (±5%)							
Weight [Kg(lbs)]		14(31)	14(31)	28(62)	28(62)	28(62)	28(62)	43(93)	43(93)

■ 400V Class Specifications

Type : SV[ ][ ][ ]iV5-4(DB)		055	075	110	150	185	220	300	370
Maximum applicable	[HP]	7.5	10	15	20	25	30	40	50
motor ranges	[kW]	5.5	7.5	11	15	18.5	22	30	37
Rated output	Capacity[kVA]	9.1	12.2	18.3	22.9	29.7	34.3	46	57
	Rated current [A]	12	16	24	30	39	45	61	75
	Output frequency	0 ~ 360Hz (V/F): 90kW							
	Output speed	0 ~ 3600rpm (Vector)							
	Output voltage	380 ~ 460V * Note3)							
Rated input	Voltage	3 ø 380 ~ 460V (-15% ~ +10%)							
	Frequency	50 ~ 60Hz (±5%)							
Weight [Kg(lbs)]		14(31)	14(31)	28(62)	28(62)	28(62)	28(62)	45(99)	45(99)

Type : SV[ ][ ][ ]iV5-4(DB)		450	550	750	900	1100	1320	1600	2200
Maximum applicable	[HP]	60	75	100	120	150	175	215	300
motor ranges	[kW]	45	55	75	90	110	132	160	220
Rated output	Capacity[kVA]	70	85	116	140	170	200	250	329
	Rated current [A]	91	110	152	183	223	264	325	432
	Output frequency	0 ~ 360Hz (V/F): 90kW							
	Output speed	0 ~ 3600rpm (Vector)							
	Output voltage	380 ~ 460V * Note3)							
Rated input	Voltage	3 ø 380 ~ 460V (-15% ~ +10%)							
	Frequency	50 ~ 60Hz (±5%)							
Weight [Kg(lbs)]		63(139)	63(139)	68(150)	98(216)	98(216)	122(269)	122(269)	175(386)

*Note1) The applicable motors stand for the maximum applicable capacities of using LG standard 4 pole motors.
*Note2) The rated capacity (= $\sqrt{3}$V × I) for 200V and 400V levels , 220V and 440V are applied respectively.
*Note3) The maximum out put voltage does not go up, over main power supply voltage.
The out put voltage can be set up below main power supply voltage.)

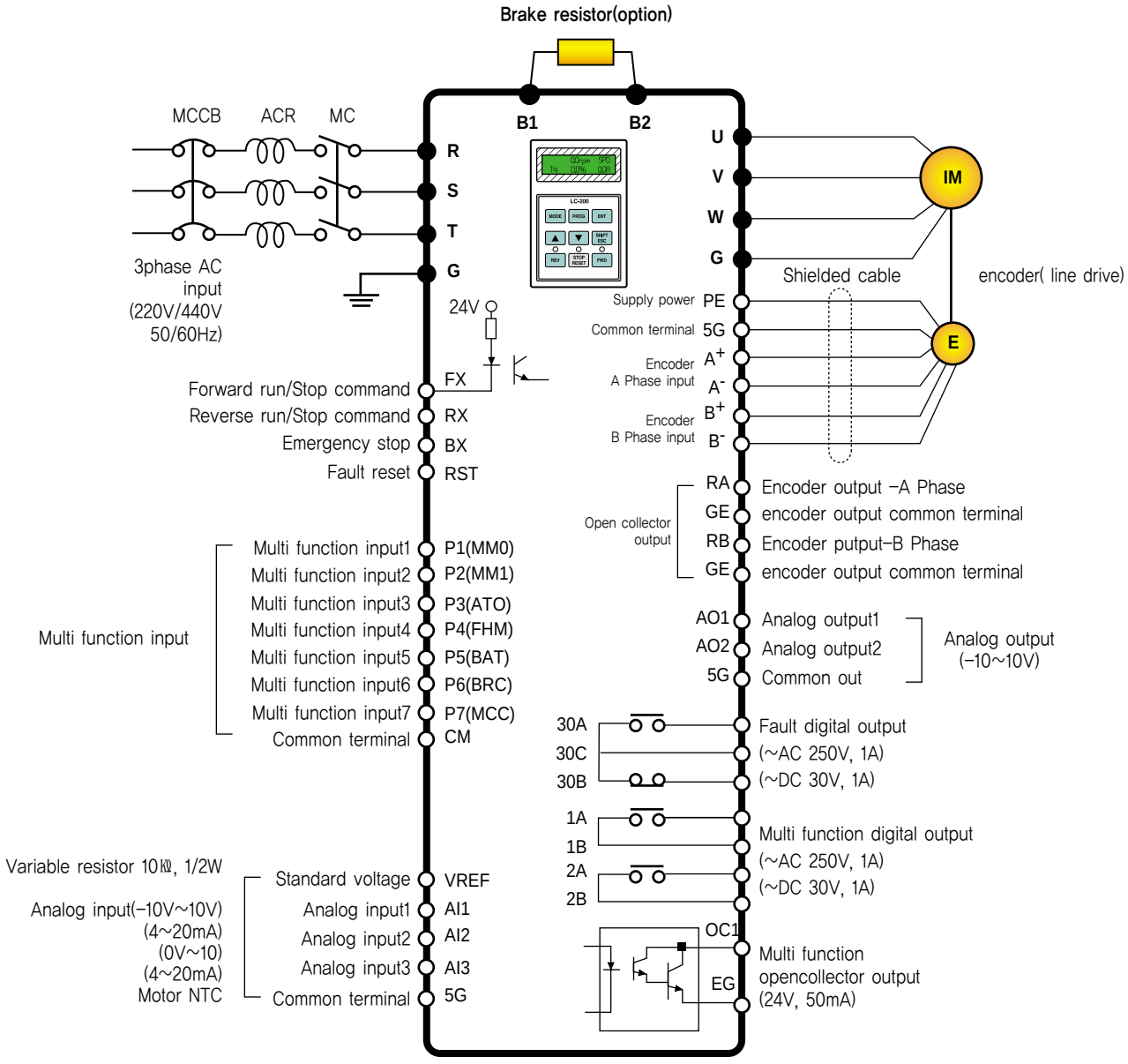


Standard Specifications

■ Common Specifications

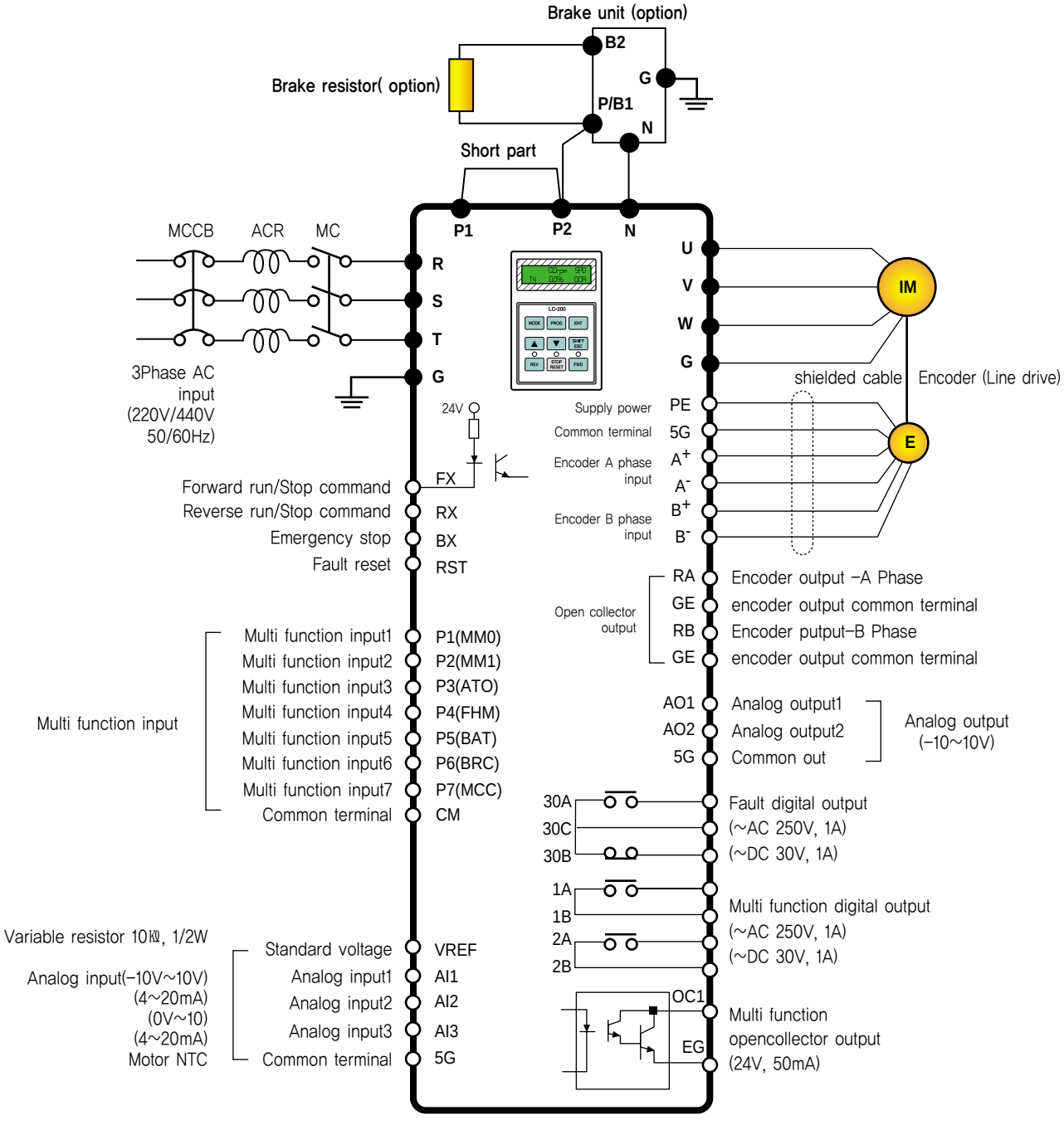
Item			Specification
Circuit type			IGBT adopted Voltage type Inverter
Control	Control type		Speed sensor attachable vector type control
			Open loop control: V/F control (90-220kW)
	Frequency/ Speed control accuracy		Analog setup: ± 0.2% of maximum frequency speed (25±10℃)
			Digital Setup: ±0.01% of maximum frequency speed (0~40℃)
	Frequency/ Speed setup resolution		Analog setup: ±0.05% of maximum frequency speed
			Digital setup: 0.01% of maximum frequency speed
	Vector	Response speed	50Hz
		torque control	3%
	V/F	V/F pattern	Linear, Square, User V/F
		torque Boost	Manual torque boost(0-20%), Automatic torque boost
	Speed ACC /DEC	Time setup	0.00-6000.0 sec (Enabled time-based setup)
		Combination	Selectable one out of 4 combined Acc/Dec speeds time.
		Pattern	Linear, S-Curve
Braking	Braking type		Discharge resistance braking
	Braking torque		150%
	Braking resistor		Needed an external braking resistor.
Input	Speed setup		Digital setup by keypad
			Multi-step-speed setup by digital input
			Setup by analog input
			Setup by options
	Analog input		3Channels (AI1, AI2, AI3)
			-10 ~ 10V, 4 ~ 20mA, 10 ~ 0V, 20 ~ 4mA, motor NTC (selective)
			Selective among 9 multi-functional analog inputs
	Digital input		FX, RX, BX, RST, P1 ~ P7
			Multi functional input terminal (P1~P7) can be selected among 27 functions.
Output	Analog output		2-Channel (AO1, AO2)
			-10 ~ 10V output
			Selective among 31 multi-functional analog output functions
	Digital output		Multi functional digital output: 2channels (1A-1B, 2A-2B)
			Fault digital output: 1channel (30A-30C, 30B-30C)
	Open collector output		1channel (OCI/EG)
Protection function			Over current, Over/low voltage, Inverter overheat, Inverter thermal open, Motor over heat,
			Motor thermal open, Over speed, Instant blocking (BX), Fuse open, Trip by unusual external signal,
			Encoder error, Communication error, Electronic thermal, Stall prevention (V/F),
			Over load(V/F), Inverter over load
Environment	Installation environment		Avoid indoor, direct ray light and corrosive gases
	Ambient temperature		-10 ~ 40C (Freeze free)
	Ambient humidity		Below RH90% (Dew free)
	Cooling method		Forced cooling by FAN
	Altitude / Vibration		Below 1000 meters/ 5.9㎧²

SV 055, 075, 110, 150, 185, 220 iV5-2(DB)
SV 055, 075, 110, 150, 185, 220 iV5-4(DB)



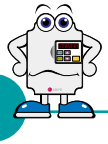
Note ●: Power terminal ○: control terminal

SV300, 370iV5-2
SV300, 370, 450, 550, 900, 1100, 1320, 1600, 2200iV5-4



Note) ●: Power terminal ○: control terminal

Terminal Function



■ Power Terminal

Display	Name	Description
R, S, T	AC Input	3Phase AC input connection 1)200V: 200~230V, 50/60Hz 2)400V: 300~460V, 50/60Hz
U, V, W	output	Cable connection of 3 phase induction motor
G	Earth	Inverter frame earth terminal
B1, B2	Braking resistor access	Braking resistor connection
P1, P2	DC reactor and Braking unit access	DC reactor, braking unit and DC link common connection terminal
P	DC Link(+-) terminal	DC Link common connection terminal
N	DC Link(-) terminal	Braking unit and DC link common terminal

■ Control Circuit Terminals

Item	Display	Name	Description
Digital input	FX	Forward run command	● "ON" when connecting to CM terminal
	RX	Reverse run command	● Stops when FX and RX are ON/OFF simultaneously
	RST	Fault reset release	● "ON" after clearing the fault sourse releases the fault reset condition
	P1(MMO)		● Select among following 27 functions; (Multi step speed selection 1/2/3, JOG run, MOP Up/down/Save/Clear, analog Hold, Main Drive, Second function, Speed Acc/Dec time selection, 3-wire operation, External default signal B contact point, Forward rotation prevention, Process PI disable, Timer input, Soft start cancellation, ASR PI Gain selection, ASR P.PI selction, Flux reference selection, Pre-excitation, Speed/Torque control selection, Torque limit use, Torque bias
	CM	COMMON	● "ON" in case of connection between CM and digital
Analog input	VREF	Analog setting power	● Variable resistor use standard voltage(+10V):10㏀
	AI1	voltage input Current input	● Input voltage(-10~10V), Input current(4~20mA) The motor NTC input is selectable
	AI2		● Selectable among following 9 functions; (Speed reference, Torque reference, Torque bias, Torque limit, Process PI control refernce, Process PI controller feedback, Draw reference, Motor NTC input) ● Jumper setup with voltage input → AI1, AI2: Open , AI3:Left direction of switch
	AI3	voltage input Motor NTC input	● Jumper setup with voltage input → AI1,AI2: Short ● With motor NTC(OTIS-LG Motor) input, switch direction setup → AI3: Right direction of switch
	5G	COMMON	● Analog input COMMON terminal

■ Control Circuit Terminals

Classification	Display	Name	Discription
Encoder Input	PE 5G	Encoder power	+5V Line drive power(Jumper detup required) 0V
	A+ A- B+ B-	Encoder A phase signal Encoder B phase signal	● A and B phases signal of line drive encoder ● When it comes to use the line drive type encoder the "P5 pin" of I/O PCB JP2 should be shorted and then the JP1 switch should be down to "LD" direction ● Jumper setup when it is released from factory
	PE 5G	Encoder power	+15V Open collector power (Jumper setup is required) 0V
	PA PB	Encoder A phase signal Encoder B phase signal	● A and B phase signals of complementary and open collector type signals ● Short the "P15 pin" of I/O PCB JP2 and then lift up the JP1 switch to "OC" direction
Encoder output	RA GE RB GE	Encoder output-phase A Encoder output common terminal Encoder output-phase B Encoder output common terminal	● Encoder phase A and B output signal-Open collector type
Analog Output	AO1 AO2	Analog output1 Analog output2	● Output -10V~+10V ● Selection among following 31 items; (Motor speed, Speed reference1~2, Torque reference1~2,Torque current volume Flux reference, Flux reference volume, inverter output current, Inverter output voltage, Motor temperature, DC voltage..)
	5G	COMMON	● COMMON terminal for analog output
Digital Output	1A 1B 2A 2B OC1 EG	Multi function digital output1(contact point A) Multi function digital output2(contact point B) Multi function open collector output	● Selectable among following 14 items; (Zero speed detection, speed detection(polarity valid), speed dtection(rotation direction invalid), Speed reach, Speed matching, arbitrary torque detection Torque limit feature, Motor overheating signal, Inverter overheating signal, Low voltage feature, Inverter run signal, Inverter regeneration signal, Inverter run function, Timer output)
	30A	Fault signal A contact point	● Output is made when the faults occurt
	30B	Fault signal B contact point	● No output is made with emergency stop
	30C	COMMON	● Common for A and B digital output

■ Control Circuit Terminal

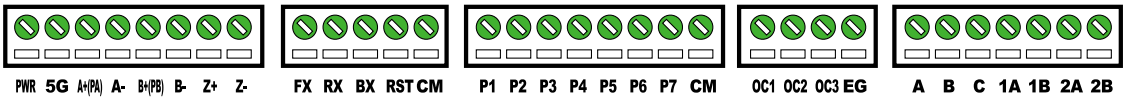
Control Terminal Feature

1) Control Terminal Panel Arrangement(Standard Type(SIO) - Non insulated type)

2) Control Terminal Panel Arrangement(Expansion Type(EIO) - Insulated type)

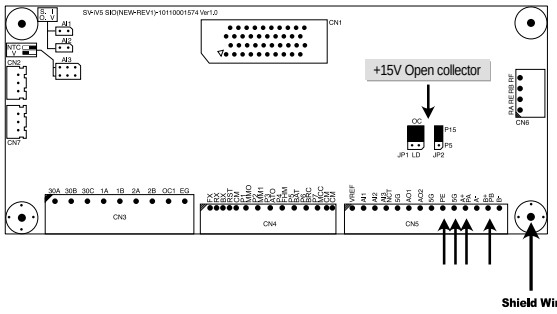
● Top board

● Bottom board

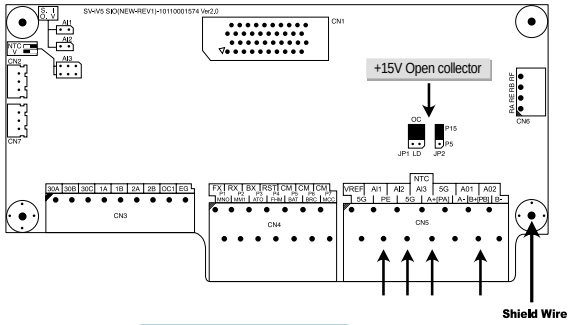


I/O Board

1) Encoder wiring and Jumper setup (+15V Complementary or Open collector)

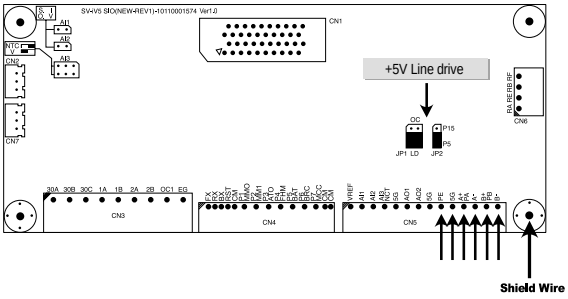


I/O PCB version : V1.0

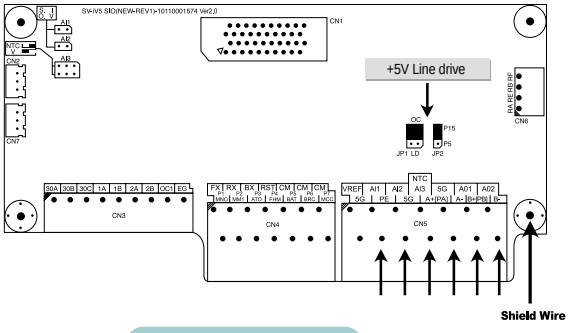


I/O PCB version : V2.0

2) Encoder wiring and Jumper setup (+5V Line drive) The jumper is setup when product is shipped from factory

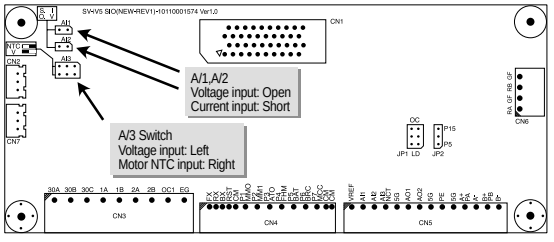


I/O PCB version : V1.0

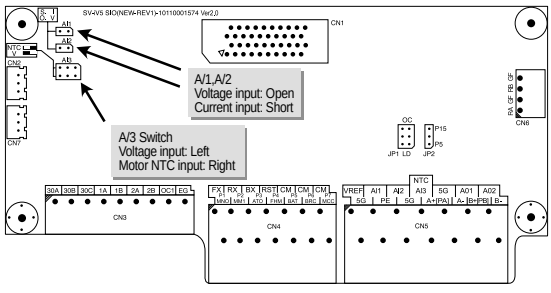


I/O PCB version : V2.0

3) Analog Input Jumper setup (Voltage/ Current/ Motor NTC inputs) Jumper setup condition in factory: Voltage input is OPEN



I/O PCB version : V1.0



I/O PCB version : V2.0

Warning

- Do not alter above mentioned encoder type jumper setups during run. The jumper type alteration during run may occur the standard speed changes or trips which would cause a serious damage in the entire system. The Jumpers should be accurately setup before the inverter running.
- The NTC input of the analog input 3(AI3) is only applicable in case of OTIS-LG motors. Due to different NTC specifications of other brands' motors, if this analog input is applied it would cause the motor damage by overheating.

Loader Use

■ Data and status display

MODE

■ Shift between function groups
■ Shifting from group code to the upper code

▲

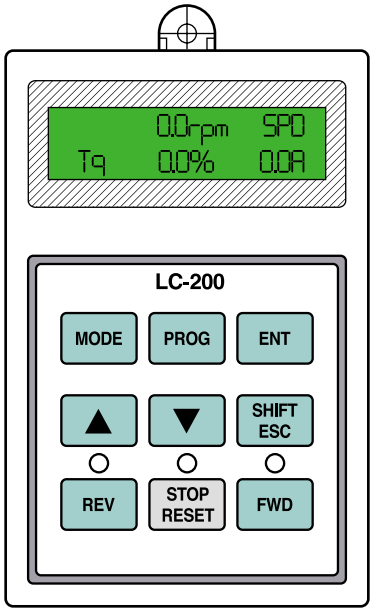
■ Function code shift
■ Shift to next function code
■ Data increase in set up mode

REV ●

■ Reverse run command key
■ Only available, with loader operation
■ LED is turned ON with reverse run
■ Blinks during Acc/Deceleration of reverse run

▼

■ Shift to function code
■ Shift to previous code
■ Data is decreased in set up mode



PROG

■ Data set up start

ENT

■ Data set up completion

SHIFT ESC

■ Decimal point shift
■ Only available in case of data setup

FWD ●

■ Forward run command key
■ Only available with loader operation
■ LED is turned on with forward run
■ Blinks during Acc/Deceleration of forward run

STOP RESET

■ Stop command
■ Available with the loader operation
■ LED is turned on with stop
■ Blinks with fault
■ Reset
■ Fault reset

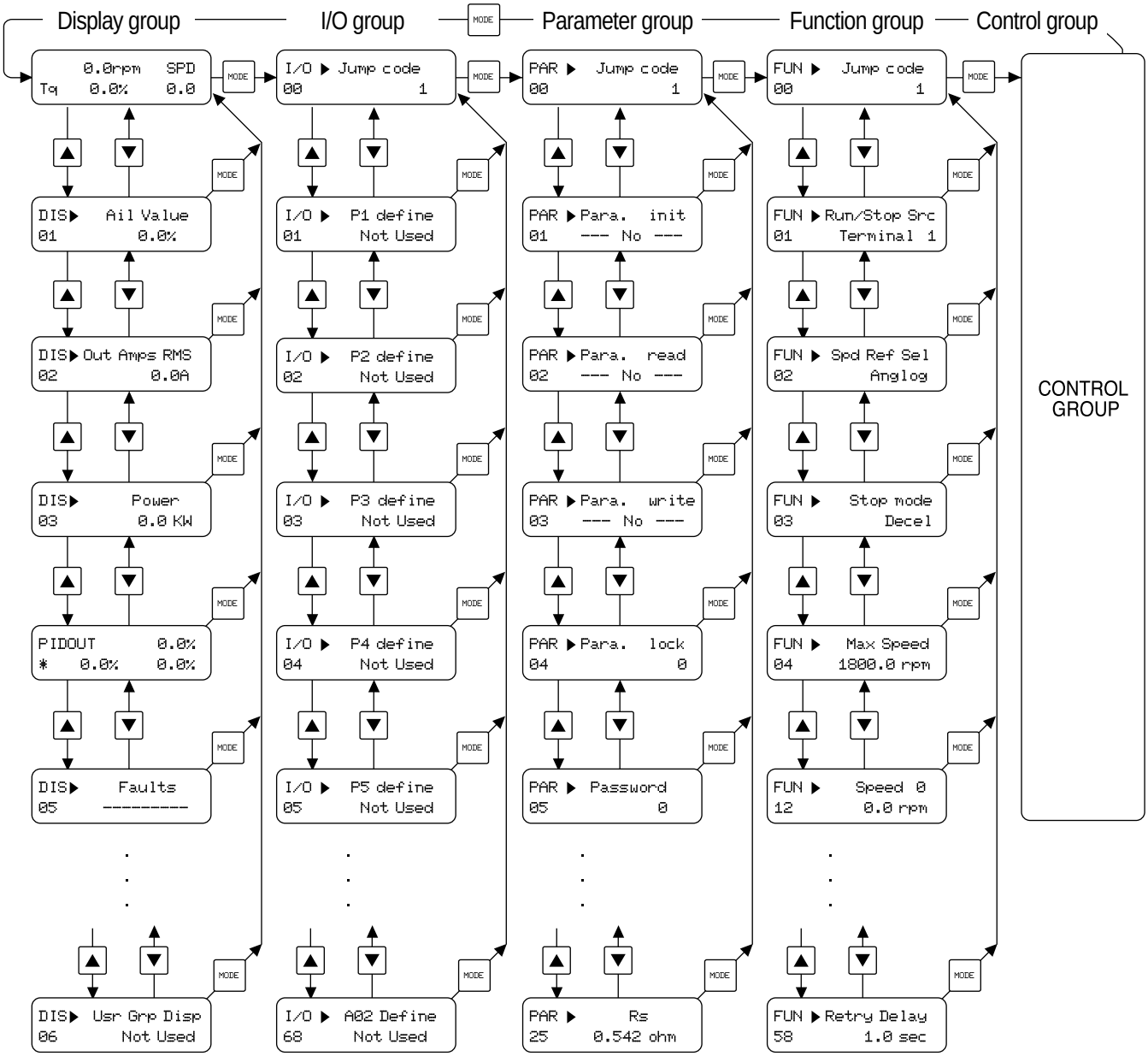
■ Loader Use Instruction

Classification	Display	Function Name	Function
KEY	MODE	Mode Key	shift between groups. shift from a group code to upper code.
	PROG	Program Key	Parameter setting value change.
	ENT	Enter Key	Saring altered setting values.
	▲(up)	Up Key	Used to shift between codes and increase the parameter value.
	▼(down)	Down Key	Used to shift between codes and decrease the parameter value.
	Shift/ESC	Shift/ESC Key	In case of set up mode, it is operated with the shift key. Operation with ESC key in non-set up mode.
	REV	Reverse run	Reverse run reference key.
	STOP/RESET	Stop/Reset Key	Stop reference key when inverter is on operation.
	FWD	Forward Key	Forward run reference key.
LED	(REV)	Reverse run key	Turns on when the inverter is on reverse run. Blinks while the inverter is on Acc/Deceleration and then turns on with a constant speed.
	(STOP/RESET)	Stop/Fault display	Keeps tranning or during stop. Keeps blinking during fault.
	(FWD)	Forward Run Display	Turns or during forward run. Acc/Deceleration running modes blink the lamp and it is turned on with of forward running. Blinks during speed Acc/Deceleration and turns on during constant speed.

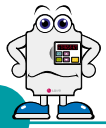
Shifts Between Each Groups and Codes in the Loader

■ Shifts between each groups and codes in LCD loader

The [MODE] key is used for shifts between each groups and the [▲UP] and the [▼down] keys are used to use the codes within the groups.



● The user group and the second group are omitted between shifts of each group.



Function Codes Table

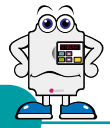
■ Display Group [DIS_[ ][ ]]

DIS Group	Code No.	Code Name	LCD Display Message	Setting Data			*Note1) R
				Range	Unit	Default	
	DIS_00	Motor speed/Control mode Actual torque/current	0.0rpm SPD Tq 0.0% 0.0A				
	DIS_01	User selection display 1	Ai1 Value		%	PreRamp Ref	Yes
			Ai2 Value		%		
			Ai3 Value		%		
			PreRamp Ref		rpm		
			PostRamp Ref		rpm		
			ASR Inp Ref		rpm		
			Output freq		rpm		
			Motor Speed		rpm		
			Speed Dev		rpm		
			ARS Out		%		
			Torque Bias		%		
			Torque Limi		%		
			Torque Ref		%		
			IqeRef		A		
			Iqe		A		
			Flux ref		%		
			Ide ref		A		
			Ide		A		
			ACR_Q Out		V		
			ACR_D Out		V		
			VdeRef		V		
			VqeRef		V		
			Out Amps RMS		A		
			Out Volt RMS		V		
			Power		kW		
			DC Bus Volt		V		
			Proc PI Ref		%		
			Proc PI F/B		%		
			Proc PI Out		%		
			Mot Temp		deg		
			Inv Temp		deg		
			Inv i2t		%		
			Inv it		%		
			MP Output		%		
			Ctrl Mode				
			S/W Version				
			Run Time				
			Terminal In				
			Terminal Out				
			Run Status				
	DIS_02	User selection display 2	Refer to DIS_01			DC Bus Volt	Yes
	DIS_03	User selection display 3	Refer to DIS_01			Terminal In	Yes
	DIS_04	Process PID output Ref / FB	PIDOut 0.0% * xx.x% 0.0%				
	DIS_05	Fault feature display	Faults				
	DIS_06	User group display setup	Usr Grp Disp	Not used Dis+User Grp Display ALL		Not used	Yes

*Note1) Parameter set up possibility during inverter operation
(Yes: Set up allowed No: Set up not allowed)

■ I/O Group [I/O_[ ][ ]]

I/O Group	Code No.	Code Name	LCD Display Message	Setting Data			R
				Range	Unit	Default	
	I/O_00	Function code selection	Jump Code	1 ~ 7.5			Yes
	I/O_01	Definition of multi-function input terminal P1	P1 Define	Not used Speed-L Speed-M Speed-H Jog Speed Mop Up Mop Down Mop Save Mop Clear Analog Hold Main Drive 2nd Func Xcel-L Xcel-H 3-Wire Ext Trip-B Prohibit FWD Prohibit REV Proc PID Dis Timer Input SoftStrtCncl ASR Gain Sel ASR P/PI Sel Flux Ref Sel PreExcite Spd/Trq Sel Use Max Trq Use Trq Bias		Not used	No
	I/O_02	Definition of multi-function input terminal P2	P2 Define	Refer to I/O-01		Not used	No
	I/O_03	Definition of multi-function input terminal P3	P3 Define	Refer to I/O-01		Not used	No
	I/O_04	Definition of multi-function input terminal P4	P4 Define	Refer to I/O-01		Not used	No
	I/O_05	Definition of multi-function input terminal P5	P5 Define	Refer to I/O-01		Not used	No
	I/O_06	Definition of multi-function input terminal P6	P6 Define	Refer to I/O-01		Not used	No
	I/O_07	Definition of multi-function input terminal P7	P7 Define	Refer to I/O-01		Not used	No
	I/O_08	Reverse operation of multi-function input terminal	Neg Function	0000000 ~ 1111111	bit	0000000	No
	I/O_09	LPF time constant of terminal input	Terminal LPF	0 ~ 2000		5	Yes
	I/O_10	Reverse run of multi-function input terminal	Neg Function, Out	00000~ 11111	bit	00000	No
	I/O_11	Definition of multi-function analog input Ai1	Ai1 define	Not used Speed Ref Proc PID Ref Proc PID F/B Draw Ref Torque Ref Flux Ref Torque Bias Torque Limit		Not used	Yes Yes Yes Yes Yes Yes Yes Yes Yes



Function Codes Table

■ I/O Group [I/O_[ ][ ]]

I/O Group	Code No.	Code Name	LCD Display Message	Setting Data			R
				Range	Unit	Default	
	I/O_12	Definition of multi-function analog input Ai1	Ai1 Source	-10~10V 4~20mA 10~0V 20~4mA		-10~10V	Yes
	I/O_13	Gain of multi-function analog input Ai1	Ai1 Gain	0.00~250.00	%	100.00	Yes
	I/O_14	Bias of multi-function analog input Ai1	Ai1 Bias	100.00 ~ Ai1 Gain	%	0.00	Yes
	I/O_15	Time constant of multi-function analog input Ai1	Ai1 LPF	0 ~ 2000	ms	0	Yes
	I/O_16	Definition of multi-function analog input Ai2	Ai2 Define			Not used	Yes
	I/O_17	Type definition of multi-function analog input Ai2	Ai2 Source			-10~10V	Yes
	I/O_18	Gain of multi-function analog input Ai2	Ai2 Gain			100.00	Yes
	I/O_19	Bias of multi-function analog input Ai2	Ai2 Bias	Refer to I/O_10 ~ I/O_15		0.00	Yes
	I/O_20	Time constant of multi-function analog input LPF Ai2	Ai2 LPF			0	Yes
	I/O_21	Definition of multi-function analog input Ai3	Ai3 Define			Not used	Yes
	I/O_22	Type definition of multi-function analog input Ai3	Ai3 Source			-10~10V	Yes
	I/O_23	Gain of multi-function analog input Ai3	Ai3 Gain	Refer to I/O_11 ~ I/O_15 (I/O_20: motor NTC selectable)		100.00	Yes
	I/O_24	Bias of multi-function analog input Ai3	Ai3 Bias			0.00	Yes
	I/O_25	Time constant of multi-function analog input Ai3	Ai3 LPF			0	Yes
	I/O_41	Definition of multi-function auxiliary output terminal AX1	AX1 Define	Not used INV Ready Zero Spd Det Spd Det. Spd Det(ABS) Spd Arrival Timer Out LV Warn Run Regenerating Mot OH Warn Inv OH Warn Spd Agree Trq Det. Trq Lmt Det.		Not used	Yes
	I/O_42	Definition of multi-function auxiliary output terminal AX2	AX2 Define	Equal to I/O_40		Not used	Yes
	I/O_43	Definition of multi-function auxiliary output terminal OC1	OC1 Define	Equal to I/O_40		Not used	Yes
	I/O_46	Fault relay mode (A,B,C terminals)	Relay Mode	000 ~ 111	bit	011	Yes
	I/O_47	Zero speed detect level	ZSD Level	0.0 ~ 480.0	rpm	10.0	Yes
	I/O_48	Zero speed detect band	ZSD Band	0.1 ~ 10.0	%	0.5	Yes
	I/O_49	Arbitrary Speed detect level	SD Level	-3600 ~ 3600	rpm	0	Yes
	I/O_50	Arbitrary Speed detect band	SD Band	0.1 ~ 10.0	%	0.5	Yes
	I/O_51	Detect band of speed reach	SA Band	0.1 ~ 10.0	%	0.5	Yes

■ I/O Group [I/O_[ ][ ]]

I/O Group	Code No.	Code Name	LCD Display Message	Setting Data			R
				Range	Unit	Default	
	I/O_53	Arbitrary Torque detect level	TD Level	0.0 ~ 250.0	%	0.0	Yes
	I/O_54	Arbitrary Torque detect band	TD Band	0.1 ~ 10.0	%	0.5	Yes
	I/O_55	Timer on delay time	TimerOn Dly	0.1 ~ 3600.0	sec	0.1	Yes
	I/O_56	Timer off delay time	TimerOff Dly	0.1 ~ 3600.0	sec	0.1	Yes
	I/O_57	Overload warning level	OL Level	30 ~ 250	%	150	Yes
	I/O_58	Overload warning time	OL Time	0 ~ 30	sec	10	Yes
	I/O_59	Overload trip selection	OLT Select	Yes / No		Yes	Yes
	I/O_60	Overload trip level	OLT Level	50 ~ 250	%	180	Yes
	I/O_61	Overload trip time	OLT Time	0 ~ 60	sec	60	Yes
	I/O_62	Inverter overheat detect temperature	IH Warn Temp	50 ~ 85	deg	75	Yes
	I/O_63	Inverter overheat detect band	IH Warn Band	0 ~ 10	deg	5	Yes
	I/O_64	Motor overheat detect temperature	MH Warn Temp	75 ~ 150	deg	140	Yes
	I/O_65	Motor overheat detect band	MH Warn Band	0 ~ 10	deg	5	Yes
	I/O_66	Definition of multi-function analog output AO1	AO1 Define	Not used Ai1 Value Ai2 Value Ai3 Value PreRamp Ref PostRamp Ref ASR Inp Ref Motor Speed Speed Dev ASR Out Torque Bias Torque Limit Torque Ref IqeRef Iqe Flux Ref IdeRef Ide ACR_Q Out ACR_D Out VdeRef VqeRef Out Amps RMS Out Volt RMS Power DC Bus Volt Proc PI Ref PROC PI F/B Proc PI Out Mot Temp Inv Temp Inv i2t		Not used	Yes
	I/O_67	Gain of multi-function analog output AO1	AO1 Gain	0.0 ~ 500.0	%	100.0	Yes
	I/O_68	Bias of multi-function analog output AO1	AO1 Bias	-100.0 ~ I/O_67	%	0.0	Yes
	I/O_69	Definition of multi-function analog output AO2	AO2 Define	Refer to I/O_66 ~ I/O_68		Not used	Yes
	I/O_70	Gain of multi-function analog output AO2	AO2 Gain	Refer to I/O_66 ~ I/O_68	%	100.0	Yes
	I/O_71	Bias of multi-function analog output AO2	AO2 Bias	Refer to I/O_66 ~ I/O_68	%	0.0	Yes

Function Codes Table

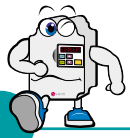
■ Parameter Group [PAR_[ ][ ]]

PAR Group	Code No.	Code Name	LCD Display Message	Setting Data			R
				Range	Unit	Default	
	PAR_00	Function code selection	Jump Code	1 ~ 31			Yes
	PAR_01	Initializing parameters as Factory default value	Para. init	No, All Groups DIS, I/O PAR, FUN CON, EXT USR, 2ND, E/L		No	No
	PAR_02	Reading all function codes	Para. read	No Yes		No	No
	PAR_03	Writing all function codes	Para. write	No Yes		No	No
	PAR_04	Prohibiting function codes change	Para. lock	0 ~ 255		0	Yes
	PAR_05	Password	Password	0 ~ 9999		0	Yes
	PAR_07	Motor capacity selection	Motor select	5.5, 7.5 11.0, 15.0 18.5, 22.0 30.0, 45.0 55.0, 75.0 90.0, 110.0 132.0. 160.0 220.0	kW		No
	PAR_08	User motor selection	User motor sel	1.5~220.0	kW	5.5	No
	PAR_09	Motor cooling method	Cooling Mtd	Self-cool, Forced-cool		Forced-cool	Yes
	PAR_10	Number of encoder pulse	Enc Pulse	360 ~ 4096		1024	No
	PAR_11	Encoder direction selection	Enc Dir Set	A Phase Lead B Phase Lead		A Phase Lead	No
	PAR_12	Encoder error check method	Enc Err Chk	Yes, No		Yes	No
	PAR_13	Encoder LPF time constant	Enc LPF	0 ~ 100	ms	1	Yes
	PAR_14	Encoder error detect time	EncFaultTime	0.00 ~ 10.00	sec	0.00	No
	PAR_15	Encoder error standard speed rate	EncFaultPerc	0.0 ~ 50.0	%	25.0	No
	PAR_17	Motor rated speed	Rated Speed	100.0 ~3600.0	rpm	1800.0	No
	PAR_18	Motor rated volt	Rated Volt	120 ~ 560	V		No
	PAR_19	Number of poles of motor	Pole Number	2 ~ 12		4	Yes
	PAR_20	Motor efficiency	Efficiency	70.0 ~ 100.0	%		Yes
	PAR_21	Motor rated slip	Rated Slip	10 ~ 250	rpm		Yes
	PAR_22	Motor rated current	Rated-Curr	1.0 ~ 450.0	A		Yes
	PAR_23	Auto tuning method selection	AutoTuneType	Standstill Rotational		Rotational	No
	PAR_24	Auto tuning type selection	Auto Tuning	None ALL1 ALL2 Encoder Test Rs Tuning Lsigma Flux Curr Ls Tuning Tr Tuning		None	No
	PAR_25	Tuning torque	Tune Torue	10.0 ~ 100.0	%	70	Yes
	PAR_26	Motor flux current	Flux Curr	0.0 ~ PAR_21	A		Yes
	PAR_27	2nd constant	Tr	30 ~ 3000	ms		Yes
	PAR_28	Stator inductance	Ls	0.00 ~ 500.00	mH		Yes
	PAR_29	Stator leakage Inductance	Lsigma	0.00 ~ 100.00	mH		Yes
	PAR_30	Stator resistance	Rs	0.000 ~ 5.000	ohm		Yes

*Note) In the case of setting up the PAR_22(Auto tuning) as "standstill", the procedure of PAR_23 (Auto tuning type selection) is displayed as following steps,
None → All1 → Rs Tuning → Lisgma → If/Tr/Ls tune

■ Function Group [FUN_[ ][ ]]

FUN Group	Code No.	Code Name	LCD Display Message	Setting Data			R
				Range	Unit	Default	
	FUN_00	Function code selection	Jump Code	1~62			Yes
	FUN_01	RUN/STOP Command selection	RUN/STOP Src	Terminal 1 Terminal 2 Keypad Option		Terminal 1	No
	FUN_02	Speed reference selection	Spd Ref Sel	Analog Keypad 1 Keypad 2 Option		Keypad 1	No
	FUN_03	Stop mode	Stop Mode	Decel Free-run		Decel	No
	FUN_04	Motor Maximum speed	Max Speed	400.0~3600.0	rpm	1800.0	No
	FUN_12	Multi-step speed0	Speed 0	0.0~Max speed	rpm	0.0	Yes
	FUN_13	Multi-step speed1	Speed 1	0.0~Max speed	rpm	0.0	Yes
	FUN_14	Multi-step speed2	Speed 2	0.0~Max speed	rpm	0.0	Yes
	FUN_15	Multi-step speed3	Speed 3	0.0~Max speed	rpm	0.0	Yes
	FUN_16	Multi-step speed4	Speed 4	0.0~Max speed	rpm	0.0	Yes
	FUN_17	Multi-step speed5	Speed 5	0.0~Max speed	rpm	0.0	Yes
	FUN_18	Multi-step speed6	Speed 6	0.0~Max speed	rpm	0.0	Yes
	FUN_19	Multi-step speed7	Speed 7	0.0~Max speed	rpm	0.0	Yes
	FUN_20	JOG speed	JOG Speed	0.0~Max speed	rpm	100.0	Yes
	FUN_21	Dewell speed	Dewell speed	0.0~Max speed	rpm	100.0	Yes
	FUN_22	Dewell time	Dewell time	0.00~30.000	rpm	100.0	Yes
	FUN_36	"S" curve rate 1 in acceleration	Acc S Start	0.0 ~ 50.0	%	0.0	No
	FUN_37	"S" curve rate 2 in acceleration	Acc S End	0.0 ~ 50.0	%	0.0	No
	FUN_38	"S" curve rate 1 in deceleration	Dec S Start	0.0~50.0	%	0.0	No
	FUN_39	"S" curve rate 2 in deceleration	Dec S End	0.0~50.0	%	0.0	No
	FUN_40	Acc time1	Acc Time-1	0.00~6000.0	sec	2.00	Yes
	FUN_41	Dec time1	Dec Time-1	0.00~6000.0	sec	2.00	Yes
	FUN_42	Acc time2	Acc Time-2	0.00~6000.0	sec	3.00	Yes
	FUN_43	Dec time2	Dec Time-2	0.00~6000.0	sec	3.00	Yes
	FUN_44	Acc time3	Acc Time-3	0.00~6000.0	sec	4.00	Yes
	FUN_45	Dec time3	Dec Time-3	0.00~6000.0	sec	4.00	Yes
	FUN_46	Acc time4	Acc Time-4	0.00~6000.0	sec	5.00	Yes
	FUN_47	Dec time4	Dec Time-4	0.00~6000.0	sec	5.00	Yes
	FUN_48	Zero-speed dec time use	Use 0 Dec T	Yes No		No	Yes
	FUN_49	Zero speed dec time	0 Dec Time	0.00~6000.0	sec	0.00	Yes
	FUN_51	Emergency stop dec time	BX Time	0.0~6000.0	sec	0.0	Yes
	FUN_52	Initial motor magnetizing time	PreExct Time	0~10000	ms	0	No
	FUN_53	Hold time	Hold Time	100~10000	ms	1000	No
	FUN_54	Electronic thermal selection	ETH Select	No Yes		No	Yes
	FUN_55	Electronic thermal 1 minute level	ETH 1 min	FUN_54~200	%	150	Yes
	FUN_56	Electronic thermal successive operation level	ETH Cont	50~FUN_53	%	100	Yes
	FUN_57	Inverter switching frequency	PWM Freq	2.5~10.0	kHz	10.0	No
	FUN_58	Selecting power-on start	Power-on Run	No Yes		Yes	Yes
	FUN_59	Selecting run after trip reset	RST Restart	No Yes		Yes	Yes
	FUN_60	Number of auto restart	Retry Number	0~10		0	Yes
	FUN_61	Auto retry delay time	Retry Delay	0.0~60.0	sec	1.0	Yes
	FUN_62	Restart delay time after stop command	Restart time	0.00~10.00	sec	0.00	No
	FUN_63	Overspeed error detect level	Overspd level	100.0~130.0	%	120.0	No
	FUN_64	Overspeed error detect time	Overspd time	0.00~2.00	sec	0.00	No



Function Codes Table

■Control Group [CON_[ ][ ]]

CON Group	Code No.	Code Name	LCD Display Message	Setting Data			R
				Range	Unit	Default	
	CON_00	Function code selection	Jump Code	1 ~ 47			Yes
	CON_01	Control mode selection	Control Mode	Speed Torque		Speed	No
	CON_02	Inverter application mode selection	Application	General Vect/ Elevator		General Vect	No
	CON_03	ASR P Gain1	ASR P Gain1	0.0 ~ 200.0	%	5.0	Yes
	CON_04	ASR I Gain1	ASR I Gain1	0 ~ 50000	ms	3000	Yes
	CON_05	ASR input LPF time constant1	ASR LPF1	0 ~ 20000	ms	0	Yes
	CON_06	ASR P Gain2	ASR P Gain2	0.0 ~ 200.0	%	50.0	Yes
	CON_07	ASR I Gain2	ASR I Gain2	0 ~ 50000	ms	300	Yes
	CON_08	ASR input LPF time constant 2	ASR LPF2	0 ~ 20000	ms	0	Yes
	CON_09	Ramp time in gain switching	ASR Ramp	10 ~ 10000	ms	1000	Yes
	CON_10	Gain switching speed	ASR TarSpd	0.0 ~ 3600.0	rpm	0.0	No
	CON_11	Process PID command(Loader)	Proc PID Ref	-100.0 ~ 100.0	%	0.0	Yes
	CON_12	Process PID position standard	Proc Posi Ref	0 ~ 65535	%	0	No
	CON_13	Process PID P gain	Proc PID Kp	0.0 ~ 999.9	%	0.0	Yes
	CON_14	Process PID I gain	Proc PID Kt	0.0 ~ 100.0	%	0.0	Yes
	CON_15	Process PID D gain	PROC PID Kd	0.0 ~ 100.0	%	0.0	Yes
	CON_16	Process PID positive limit	Proc PID Lmt	-100.0 ~100.0	%	100	Yes
	CON_17	Process PID negative limit	Proc Neg Lmt	-100.0 ~100.0	%	100	Yes
	CON_18	Process PID output LPF time constant	Proc Out LPF	0 ~ 500	ms	0	Yes
	CON_19	Process PID output gain	Proc OutGain	-250.0 ~ 250.0	%	0.0	Yes
	CON_20	Process PID output enable	Proc PID Enb	Disable Enable Terminal		Disable	No
	CON_21	Process PID Hold time	PID Hold time	0~10000	ms	0	No
	CON_22	Draw set up percentage	Draw %	-100.0 ~ 100.0	%	0.0	Yes
	CON_23	Droop control percentage	Droop %	0.0 ~ 100.0	%	0.0	Yes
	CON_24	Droop control minimum speed	Droop MinSPd	0.0 ~ 3600.0	rpm	0.0	Yes
	CON_25	Droop control minimum torque	Droop MinTrd	0.0 ~ 100.0	%	0.0	Yes
	CON_26	Torque reference value selection	Trq Ref Src	None Analog Option		None	No
	CON_27	Torque reference (Loader)	Trq Ref	-180.0~180.0	%	0.0	Yes
	CON_28	Torque limit definition	Trq Lmt Src	Kpd Kpd Kpd Kpd Kpd Ax Kpd Ax Kpd Kpd Ax Ax Ax Kpd Kpd Ax Kpd Ax Ax Ax Kpd Ax Ax Ax Opt Opt Opt		Kpd Kpd Kpd	No
	CON_29	Forward torque limit	Pos Trq Lmt	0.0 ~ 250.0	%	150.0	Yes
	CON_30	Reverse torque limit	Neg Trq Lmt	0.0 ~ 250.0	%	150.0	Yes
	CON_31	Regenerative torque limit	Reg Trq Lmt	0.0 ~ 250.0	%	150.0	Yes
	CON_32	Torque bias selection	Trq Bias Src	None Analog Keypad Option		None	No
	CON_33	Torque bias volume	Trq Bias	-150.0 ~ 150.0	%	0.0	Yes
	CON_34	Torque bias compensation volume of friction factor	Trq Bias FF	-150.0 ~ 150.0	%	0.0	Yes
	CON_35	Torque balance percentage	Trq Bias F	0.0 ~ 100.0	%	50.0	Yes
	CON_49	Speed search selection	Speed search	0000~1111 (Bit set up)		0100	No

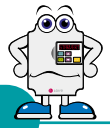
■User Group [USR_[ ][ ]]

User Group	Code No.	Code Name	LCD Display Message	Control Method		I/O Option		Setting Data			R
				Vector	V/F	SIO	EIO	Range	Unit	Default	
	USR_00	Function code selection	Jump Code					1 ~ 67			Yes
	USR_01	Initializing as applicable field's initial value	Macro Init	○	○	○	○	User Define E/L		User Define	No
	USR_02	User data save	User Save	○	○	○	○	Yes No		No	No
	USR_03	Recall saved user data	User Recall	○	○	○	○	Yes No		No	No
	USR_04	User group data	User Grp	○	○	○	○				No

■ 2nd function group [2nd_[ ][ ]]

2nd Group	Code No.	Code Name	LCD Display Message	Setting Data			R
				Range	Unit	Default	
	2nd_00	Function code selection	Jump Code	1 ~ 33			Yes
	2nd_01	2nd motor control mode	2nd Ctl Mode	Speed Torque		Speed	No
	2nd_02	2dn motor maximum speed	2nd Max Spd	400.0 ~ 3600.0	rpm	1800.0	No
	2nd_04	2nd motor multi-step speed 0	2nd Spd 0	0.0 ~ 2nd_02	rpm	0.0	Yes
	2nd_05	"S" curve rate 1 in the 2nd motor acceleration	2nd Acc S St	0.0 ~ 50.0	%	0.0	No
	2nd_06	"S" curve rate 2 in the 2nd motor acceleration	2nd Acc S Ed	0.0 ~ 50.0	%	0.0	No
	2nd_07	"S" curve rate 1 in the 2nd motor deceleration	2nd Dec S St	0.0 ~ 50.0	%	0.0	No
	2nd_08	"S" curve rate 2 in the 2nd motor deceleration	2nd Dec S Ed	0.0 ~ 50.0	%	0.0	No
	2nd_09	The 2nd motor acceleration time	2nd Acc time	0.00 ~ 6000.0	sec	10.00	Yes
	2nd_10	The 2nd motor deceleration time	2nd Dec time	0.00 ~ 6000.0	sec	10.00	Yes
	2nd_11	The 2nd motor cooling method	2nd Cool Mtd	Self-cool Forced-cool		Self-cool	Yes
	2nd_12	Number of encoder pulse of 2nd motor	2nd Enc #	360 ~ 4096		1024	No
	2nd_13	The 2nd motor encoder direction selection	2nd Enc dir	A(B)Phase Lead		A Phase Lead	No
	2nd_14	The 2nd motor encoder error check method	2nd Enc chk	Yes No		Yes	No
	2nd_15	The 2nd motor encoder LPF Time Constant	2nd Enc LPF	0 ~ 100	ms	1	Yes
	2nd_17	The 2nd motor rated speed	2nd RatedSpd	300.0 ~ 3600.0	rpm	1800.0	No
	2nd_18	The 2nd motor rated volt	2nd R-Volt	120 ~ 560	V		No
	2nd_19	The 2nd motor number of poles	2nd Pole #	2 ~ 12		4	No
	2nd_20	The 2nd motor efficiency	2nd Mot Eff	70 ~ 100	%		Yes
	2nd_21	The 2nd motor rated slip	2nd R-Slip	10 ~ 250	rpm		Yes
	2nd_22	The 2nd motor rated current	2nd R-Curr	1.0 ~ 450.0	A		Yes
	2nd_23	The 2nd motor flux current	2nd Flx Cur	70% of 0.0~2nd_22	A		Yes
	2nd_24	The 2nd motor 2nd time constant	2nd Mot Tr	30 ~ 3000	ms		Yes
	2nd_25	The 2nd motor stator inductance	2nd Mot Ls	0.00 ~ 500.00	mH		Yes
	2nd_26	The 2nd motor stator leakage factor	2nd Mot sLs	0.00 ~ 100.00	mH		Yes
	2nd_27	The 2nd motor stator resistance	2nd Mot Rs	0.000 ~ 5.000	ohm		Yes
	2nd_32	The 2nd motor electronic thermal 1 minute level	2nd Eth 1min	100 ~ 150	%	150	Yes
	2nd_33	The 2nd motor electronic thermal continuous operation level	2nd Eth cont	50 ~ 150	%	100	Yes

*Note) The auto furing method of the 2nd motor should be Same with the (PAR_22) and (PAR_23).



Function Codes Table

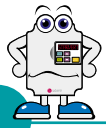
■ Elevator Application Group [E/L_[ ][ ]]

E/L Group	Code No.	Code Name	LCD Display Message	Setting Data			R
				Range	Unit	Default	
	E/L_00	Function code selection	Jump Code	1 ~ 61			Yes
	E/L_01	Speed pattern type selection	Spd Ref Type	DecelReq-D/B DecelReq-T/B		Decel/Req-D/B	No
	E/L_02	Number of floors	Floor Number	1 ~ 32	F	32	No
	E/L_03	Rated car speed	Car Speed	30 ~ 420	m/m	240	No
	E/L_04	Motor speed in rated car speed	Motor Speed	20.0 ~ 3600.0	rpm	1500.0	No
	E/L_05	Motor run direction selection	Up Direction	Fx-CCW FX-CW		Fx-CCW	No
	E/L_06	Rated acceleration	Rated Accel	0.50 ~ 1.20	m/sec^2	0.50	No
	E/L_07	Rated deceleration	Rated Decel	0.50 ~ 1.20	m/sec^2	0.50	No
	E/L_08	Acceleration first half time	Acc Start T	0.50 ~ 1.20	sec	1.00	No
	E/L_09	Acceleration second half time [1) 2)]	Acc End T	0.50 ~ 1.20	sec	1.00	No
	E/L_10	Deceleration first half time [1) 2)]	Dec Start T	0.50 ~ 1.20	sec	1.00	No
	E/L_11	Deceleration second half time [1) 2)]	Dec End T	0.50 ~ 1.20	sec	1.00	No
	E/L_12	Common delay compensation distance	CommDlyDist	100 ~ 1000	m/m	400	Yes
	E/L_13	Deceleration start distance adjustment	DecStartAdj	-10 ~ 20	m/m	0	No
	E/L_14	Motor excited time	PreExct Time	100 ~ 10000	msec	300	No
	E/L_15	Break release time	BrakeTime	0 ~ 10000	msec	300	No
	E/L_16	Hold time after reaching zero-speed	Hold Time	0 ~ 10000	msec	300	No
	E/L_17	Restart hold time after stopping	Restart Time	1.00 ~ 1000.0	sec	300	No
	E/L_18	Block plate length	Plate Length	EL-19 ~ 1000.0	mm	200.0	No
	E/L_19	Distance between position sensor and block plate in floor low/high level	InductorEdge	0.0 ~ E/L-18	mm	20.0	No
	E/L_20	Car speed in floor level search [1) 2)]	FHM Speed	0.0 ~ 60.0	m/m	15.0	No
	E/L_21	Floor level measuring result	FHM DATA	0 ~ 321	-	0	Yes
	E/L_22	Car speed1 in manual operation [1) 2)]	Manual Spd1	0.0 ~ 60.0	m/m	15.0	No
	E/L_23	Car speed2 in manual operation [1) 2)]	Manual Spd2	0.0 ~ 60.0	m/m	20.0	No
	E/L_24	Car speed3 in manual operation [1) 2)]	Manual Spd3	0.0 ~ 60.0	m/m	30.0	No
	E/L_25	Acceleration in manual operation [1) 2)]	MAN Accel	0.01 ~ 5.00	m/sec^2	0.25	No
	E/L_26	Deceleration in manual operation [1) 2)]	MAN Dccel	0.01 ~ 5.00	m/sec^2	0.25	No
	E/L_27	Acceleration 1st half time in manual operation acceleration [1) 2)]	ManAccStartT	0.01 ~ 2.00	sec	0.50	No
	E/L_28	Acceleration 2nd half time in manual operation acceleration [1) 2)]	ManAccEndT	0.01 ~ 2.00	sec	0.50	No
	E/L_29	Deceleration 1st half time in manual operation deceleration [1) 2)]	ManAccStartT	0.01 ~ 2.00	sec	0.50	No
	E/L_30	Deceleration 2ndhalf time in manual operation deceleration [1) 2)]	ManDecEndT	0.01 ~ 2.00	sec	0.50	No
	E/L_41	Distance compensation minimum value on running	DistComp.Min	0 ~ 2*E/L-19	mm	0	No
	E/L_42	Distance compensation maximum value on running	DistComp.Max	0 ~ 100	mm	0	No
	E/L_43	Distance compensation level in stopping [1)]	DistComp.Lev	0 ~ 0.5*E/L-19	mm	0	No

■ Elevator Application Group [E/L_[ ][ ]]

E/L Group	Code No.	Code Name	LCD Display Message	Setting Data			R
				Range	Unit	Default	
	E/L_44	Creep running car speed [3]	Creep Speed	1 ~ 60	m/m	3	No
	E/L_45	Creep speed running distance [2]	Creep Dist	0 ~ 500	mm	5	No
	E/L_46	Distance compensation value when car stops [2]	Level Dist	0.5*E/L-19 ~ 1.5*E/L-19	mm	10	No
	E/L_47	Distances of position control ending and zero-speed deceleration in stopping	D/B End Dist	0 ~ E/L-19	mm	0	No
	E/L_48	Deceleration time as zero-speed after ending the position control	Spd Zero Time	0.00 ~ 10.00	sec	2.00	No
	E/L_49	Determining the standard value if the EL50 speed is applied with the SDS-1 signal	ForcedDecSpd	0.0 ~ 420.0	m/m	0.0	No
	E/L_50	Forced deceleration start speed of SDS-1 [4]	ForcedDecel	0.01 ~ 5.00	m/sec^2	3.00	No
	E/L_51	Creep speeds in forced deceleration [4]	ForcedCrpSpd	0.01 ~ 6.00	m/m	4.0	No
	E/L_52	Waiting time after reaching zero speed in forced deceleration [4]	Frcd.DecWait	0 ~ E/L-16	msec	300	No
	E/L_53	SDS-2 use set up	Use FrcdDcl2	No Yes		No	No
	E/L_54	Forced deceleration start speed of SDS-2 input [5]	Frcd.DecSpd2	0.0 ~ 420.0	m/m	0.0	No
	E/L_57	Selecting key pad displayed information	Display Sel	Car Spd(M/M) Car Spd(M/S) Car Spd(RPM) Car Position Lmt.S/W state Tuning Dist	-	Car Spd(M/M) No	Yes
	E/L_58	Car position initializing	Clear Posi	No Yes		1	No
	E/L_59	Floor level search	Show FrPosi	1 ~ E/L-02	F	1000.0	Yes
	E/L_60	Lowest floor forced deceleration switch location	SDS-D posi	10.0~60000.0	mm	1000.0	Yes
	E/L_61	Highest floor forced deceleration switch location	SDS-D posi	10.0~60000.0	mm	Inductor ON	Yes
	E/L_62	Condition of automatic high speed run start	Highspd start	Inductor ON always		0.00	Yes
	E/L_63	Manual run deceleration time	Manspad start	00000000000~1111111111	sec	00000000000	No
	E/L_64	Reverse run of ELIO signal input	ELIO in Neg	11		0	No
	E/L_65	Start up acceleration	Start up Acccel	0.00~1.00	m/sec^2	0.00	No
	E/L_66	Start up acceleration time	Start up AccT	0.01~5.00	sec	0.00	No
	E/L_67	Start up Waiting Time	Start upWait	0.00~5.00	sec	0.00	No

*Note1) is only displayed in the case of the E/L-01 is selected as "DecelReq-D/B"
*Note2) is only displayed in the case of the E/L-01 is selected as "DecelReq-T/B"
*Note3) is only displayed in case that the E/L-49 is not "O"
*Note4) is only displayed the E/L-49 or E/L-54 are not selected as "0.0"
*Note5) is only displayed the E/L-53 is selected as "Yes"
*Note6) Set up possibility during run (Yes: Possible, No: Impossible)



Braking Unit and Resistor

1. SV055iV5-2/4 ~ SV220iV5-2/4 : Built-in Brake Unit

1) Braking resistor specifications in capacity

Below table listed resistance values have been calculated based on the 150%, 5%ED standard. In case of 10%ED use, please use as doubling resistors' rated watt.

Type	Applicable Inverters	Capacity(5%ED)	
		[Ω]	[W]
BR0800W020J	SV 055iV5-2 DB	20	800
BR01200W015J	SV 075iV5-2 DB	15	1200
BR2400W010J	SV 110iV5-2 DB	10	2400
BR2400W008J	SV 150iV5-2 DB	8	2400
BR3600W005J	SV 185iV5-2 DB	5	3600
BR3600W005J	SV 220iV5-2 DB	5	3600
BR1000W085J	SV 055iV5-4 DB	85	800
BR1200W060J	SV 075iV5-4 DB	60	1200
BR2400W040J	SV 110iV5-4 DB	40	2400
BR2400W030J	SV 150iV5-4 DB	30	2400
BR3600W020J	SV 185iV5-4 DB	20	3600
BR3600W020J	SV 220iV5-4 DB	20	3600

▶ ED 100sec standard. ▶ Resistance capacity bases on the self-cooling standard.

2) Brake resistor wiring

LGIS made brake resistor has attached a temperature detectable sensor for fire protection.
See below when use.

Brake resistor terminal blocks	Inverter terminals	Operation
B1, B2	P,BR	
P7, CM	One of the multi function input terminals, out of P1~P7, of control terminals board is used as defining "External trip signal contact B"	The contact is ON in normal temperature and opens in overheat.

2. SV300iV5-2/4 ~ SV550iV5-2/4, SV750iV5-4 ~ SV2200iV5-4 : An external, unit is attached.

- **200V Series**

Applicable inverters	SV300iV5-2	SV370iV5-2
Brake unit type	SV037DBH-2	
Brake resistor	3Ω, 5kW	
Applicable motors	30KW	37KW

- **400V Series**

Applicable inverters	SV300iV5-4	SV370iV5-4	SV450iV5-4	SV550iV5-4	SV750iV5-4	SV900iV5-4~ SV1600iV5-4
Brake unit type	SV037DBH-4		SV075DBH-4			SV075DB 4x2units
Brake resistor	12 Ω, 5kW			12 Ω, 5kWx2units		12 Ω, 5kWx4units
Applicable motors	30KW	37KW	45KW	55KW	75KW	90KW~160KW

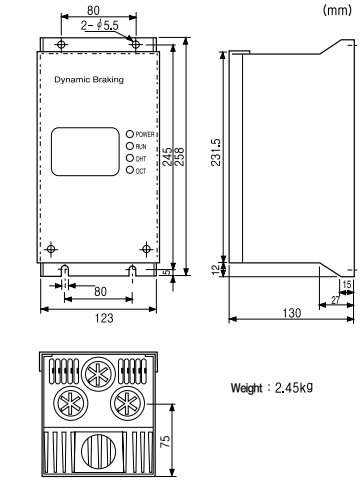
- **Terminal functions**

Terminal name	Description
P/B1	For connection to inverter terminal P2 or P and B2 of braking resistor.
N	For connection to inverter terminal N
B2	For connection to brake resistor B2
G	Ground terminal
IN+	For link control connection (used when SLAVE MODE)
IN-	For link control connection (used when SLAVE MODE)
OUT+	For link control connection (used when MASTER MODE)
OUT-	For link control connection (used when MASTER MODE)
30A/30B/30C	Fault signal output terminal, when the protection function of braking unit operates. 30A : Contact A, 30B : Contact B, 30C COMMON

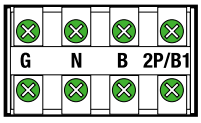
● **Display functions**

Displayed item	Description
POWER	Main power approval in braking unit turns on the POWER LED. Generally the braking unit is wired to Inverter so, once the input main power of inverter is approved the POWER LED of braking unit turns on.
RUN	While braking unit operates its normal TURN ON operation by the motor regenerative energy, the RUN LED blinks.
OHT	While the braking operation is in action, if the braking unit heat sink is overheated and exceeds its default value, the overheat protection function operates. This blocks the braking unit signal and then turns on the OHT LED.
OCT	While the braking operation is in action, if over current flows in the main circuit of braking unit inside then the over current protection function is operated in order to prevent the circuit from over current. Here in the TURN ON signal of braking unit is blocked and then turns on the OCT LED.

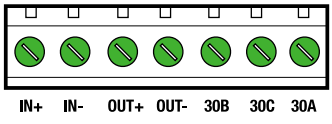
■ Terminal Block and Braking Unit



Main circuit terminal block

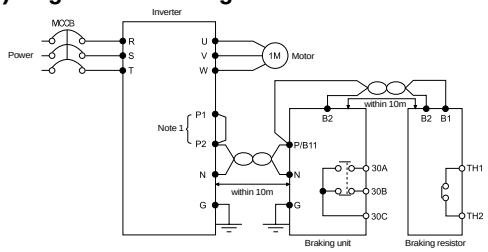


Control circuit terminal

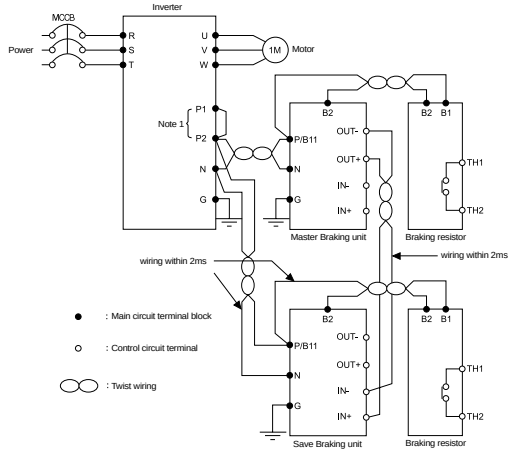


■ Wiring

1) Single use of Braking unit

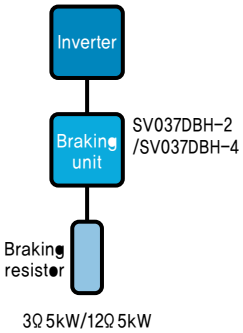


2) Double use of Braking unit

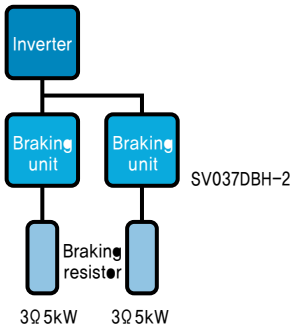


■ Combination of the Braking units and Braking resistors

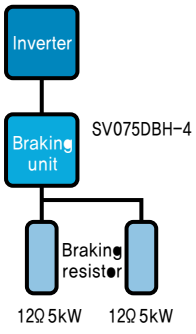
● In case of 30~37kW(200v/400v)



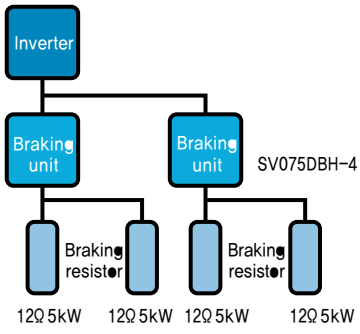
● In case of 45~55kW(200v)



● In case of 45~75kW(400v)

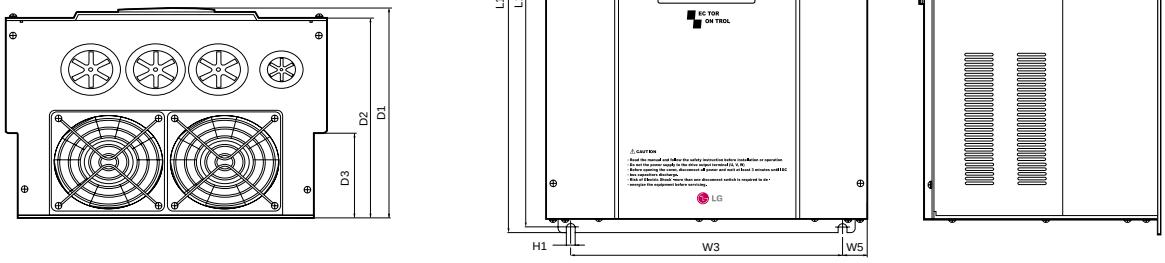


● In case of 90~160kW(400v)



Demension

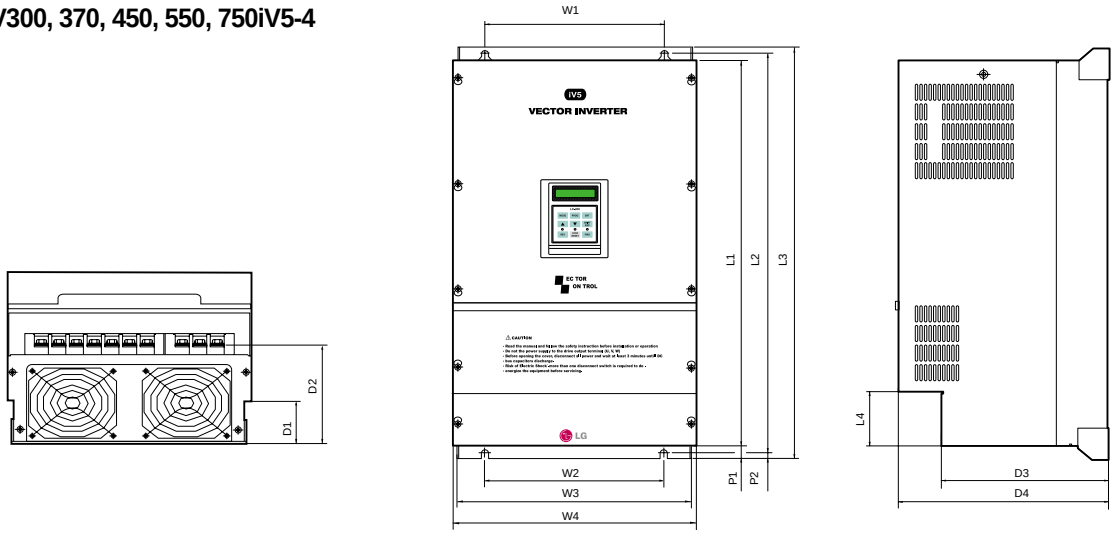
1) SV055iV5-2DB ~ SV220iV5-4DB



● Demensions of each capacity (mm[inches])

Inverter Model	W1	W2	W3	W4	W5	L1	L2	L3	D1	D2	D3	H1	H2	H3
SV055iV5-2/4DB SV075iV5-2/4DB	234.4 [9.22]	180 [7.08]	180 [7.08]	27.2 [1.07]	27.2 [1.07]	406.2 [15.9]	391.2 [15.4]	7.5 [0.29]	221.1 [8.7]	209.5 [8.24]	75 [2.95]	6 [0.23]	ø 6	ø 12
SV110iV5-2/4DB SV150iV5-2/4DB SV185iV5-2/4DB SV220iV5-2/4DB	335 [13.1]	284 [11.1]	284 [11.1]	25.5 [1.00]	25.5 [1.00]	526 [20.7]	509 [20.0]	10 [0.39]	248.6 [9.78]	237 [9.33]	100 [3.93]	7 [0.27]	ø 7	ø 14

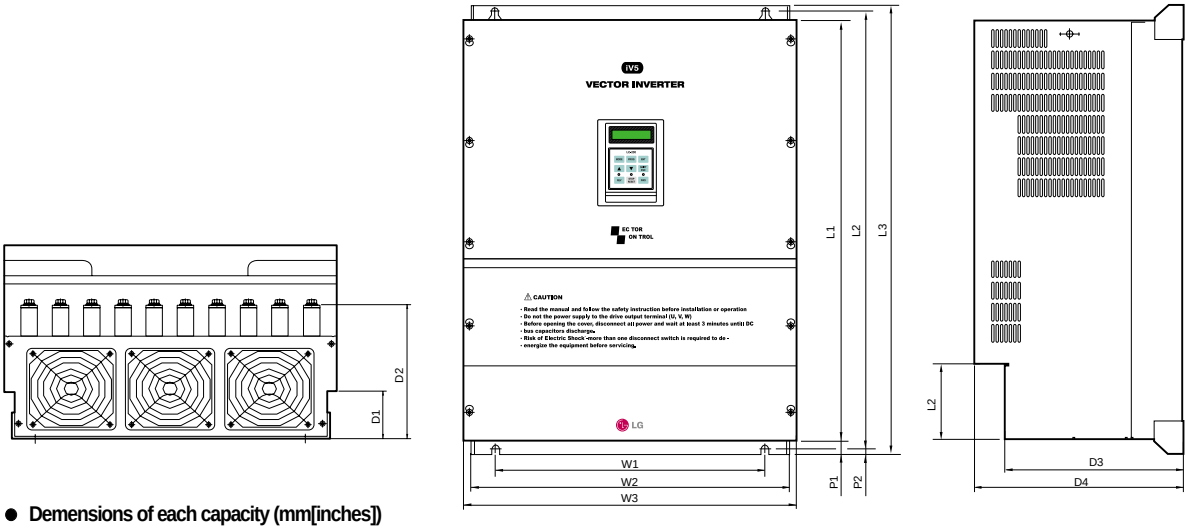
2) SV300, 370iV5-2
SV300, 370, 450, 550, 750iV5-4



● Demensions of each capacity (mm[inches])

Inverter Model	W1	W2	W3	W4	L1	L2	L3	D1	D2	D3	D4	P1	P2
SV300iV5-2/4 SV370iV5-2/4	270 [10.6]	270 [10.6]	319 .2 [12.5]	350 [13.7]	635 [25.0]	660 [26.0]	680 [26.7]	120 [4.72]	197 [7.76]	256.6 [10.1]	308.2 [12.1]	16.9 [0.66]	8 [0.31]
SV450iV5-4 SV550iV5-4 SV750iV5-4	275 [10.8]	275 [10.8]	359.6 [14.1]	375 [14.7]	730.6 [28.7]	758.5 [29.8]	780 [30.7]	82.3 [3.24]	189.3 [7.45]	259 [10.2]	326 [12.8]	24.5 [0.90]	10.5 [0.41]

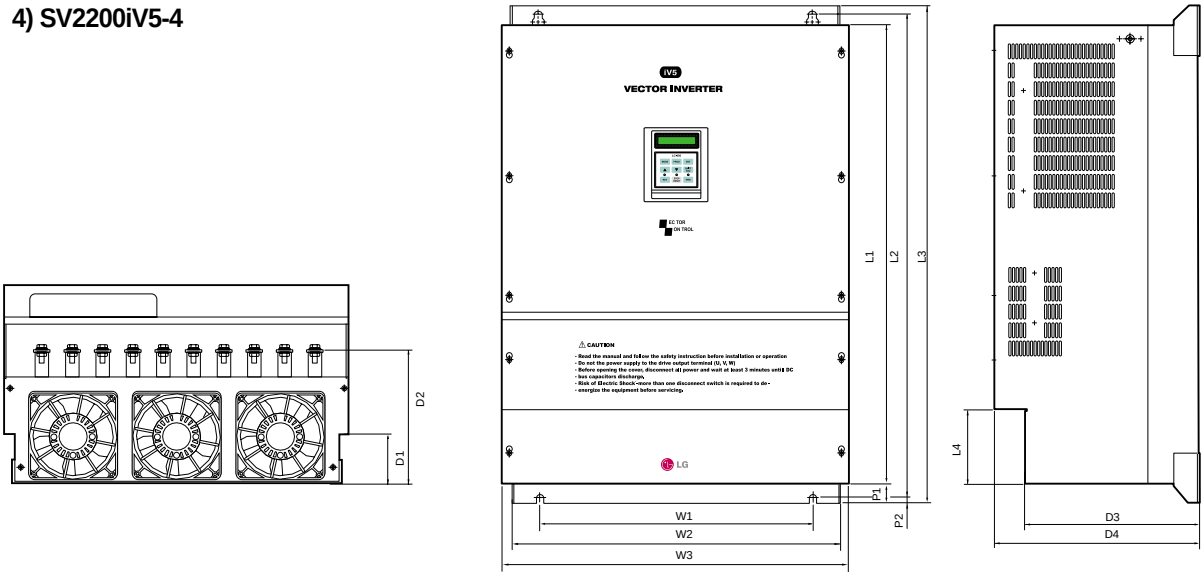
3) SV900iV5-4 ~ SV1600iV5-4



● Demensions of each capacity (mm[inches])

Inverter Model	W1	W2	W3	L1	L2	L3	D1	D2	D3	D4	P1	P2
SV900iV5-4	430	507	530	729	760	780	83.2	234.6	286.2	335	23.5	8.5
SV1100iV5-4	[16.9]	[19.9]	[20.8]	[28.7]	[29.9]	[30.7]	[3.27]	[9.23]	[11.2]	[13.2]	[0.92]	[0.33]
SV1320iV5-4	430	507	530	949	980	1000	95.2	231.6	298	345	23.5	8.5
SV1600iV5-4	[16.9]	[19.9]	[20.8]	[37.3]	[38.5]	[39.3]	[3.75]	[9.12]	[11.7]	[13.5]	[0.92]	[0.33]

4) SV2200iV5-4



● Demensions of each capacity (mm[inches])

Inverter Model	W1	W2	W3	L1	L2	L3	L4	D1	D2	D3	D4	P1	P2
SV2200iV5-4	540	649	680	922	968.5	998	150	100.2	271	343	403	38	12
	[21.26]	[25.55]	[26.77]	[36.3]	[38.13]	[39.29]	[5.91]	[3.94]	[10.67]	[13.5]	[15.87]	[1.49]	[0.47]

Fault Solution and Check

Fault Display

Inverter faults actirate its protection functions which enable alarm operation and each fault status is displayed in the loader. Please reset once the protection function becomes in operation. Refer to below table for the LCD loader displays.

Protection function	LCD Display	Description
Over current	OC-U OC-V OC-W	Inverter turns off its output when the output current of the inverter flows more than 200% of the inverter rated current.
Ground fault protection	Ground Fault	Inverter turns off its output when a ground fault occurs and the ground fault current is more than the internal setting value of the inverter. Over current trip function may protect the inverter when a ground fault occurs due to a low ground fault resistance.
Over voltage protection	Over Voltage	Inverter turns off its output if the DC voltage of the main circuit increases higher than the rated value (200V series : 400V DC, 400V Series : 800V DC) when the motor decelerates or when regenerative energy flows back to the inverter due to a regenerative load. This fault can also occur due to a surge voltage generated at the power supply system.
Low voltage protection	Low Voltage	Inverter turns off its output if the DC voltage is below the rated level(200V Series: 200VDC, 400V Series : 400Vdc) because insufficient torque or over heating of the motor can occurs when the input voltage of the inverter drops.
Over load trip (Over load protection)	Over Load	Inverter turns off its output if the output current of inverter is over 180% of motor rated current and over load trip time. (only applicable to over 90kW inverters and also V/F control mode)
Fuse open	Fuse Open	Inverter turns off its output by opening the fuse when something is wrong with the main circuit IGBT to protect the wiring from being damaged from short currents
Inverter over heat	InvOver Heat	Inverter turns off its output if the heat sink over heats due to a damaged cooling fan or an alien substance in the cooling fan by detecting the temperature of the heat sink.
Inverter NTC thermister open	InvThem OP	Inverter turns off its output if the NTC Thermister, which measures the temperature of inverter, is open.
Motor over heat	MotOver Heat	Inverter turns off its output if the motor is over-heated to protect the motor. This protective function prevents the motor from over heat.
Motor NTC thermister open	MotThem OP	Inverter turns off its output if the NTC Thermister, which measures the motor temperature, is open.
Electronic thermal	E-Thermal	Internal electronic thermal of the inverter determines the over heating of the motor. If the motor is overloaded the inverter turns off the output. Inverter cannot protect the motor when driving a multi-pole motor or when driving multiple motors, so consider thermal relays or other thermal protective devices for each motor.
External fault	Ext Trip-B	This is used if the user wants to turn off the inverter output due to external fault signal.
IGBT short	Arm short-U Arm short-V Arm Short-W Arm Short-DB	Inverter turns off its output if IGBT Arm or output shorts occur.
Encoder error	Encoder Err	This is displayed if there is a problem of encoder signal.
BX Protection (Instant cut off)	BX	Used for the emergency stop of the inverter. The inverter instantly turns off the output when the BX terminal is turned ON, and returns to regular operation when the BX terminal is turned OFF. Take caution when using this function.
Motor over speed	Over Speed	The motor runs exceeding 120% of its maximum default speed.
Communication error	COM Error CPU Error	This is displayed if there is any types of communication errors between the inverter main and loader.

CE UL cUL ISO9001

Micro Type
- 1ø 200V: 0.4kW ~ 2.2kW
- 3ø 200V: 0.4kW ~ 0.75kW

Economy Type
- 1ø 200V: 0.75kW ~ 1.5kW
- 3ø 200/400V: 0.75kW ~ 3.7kW

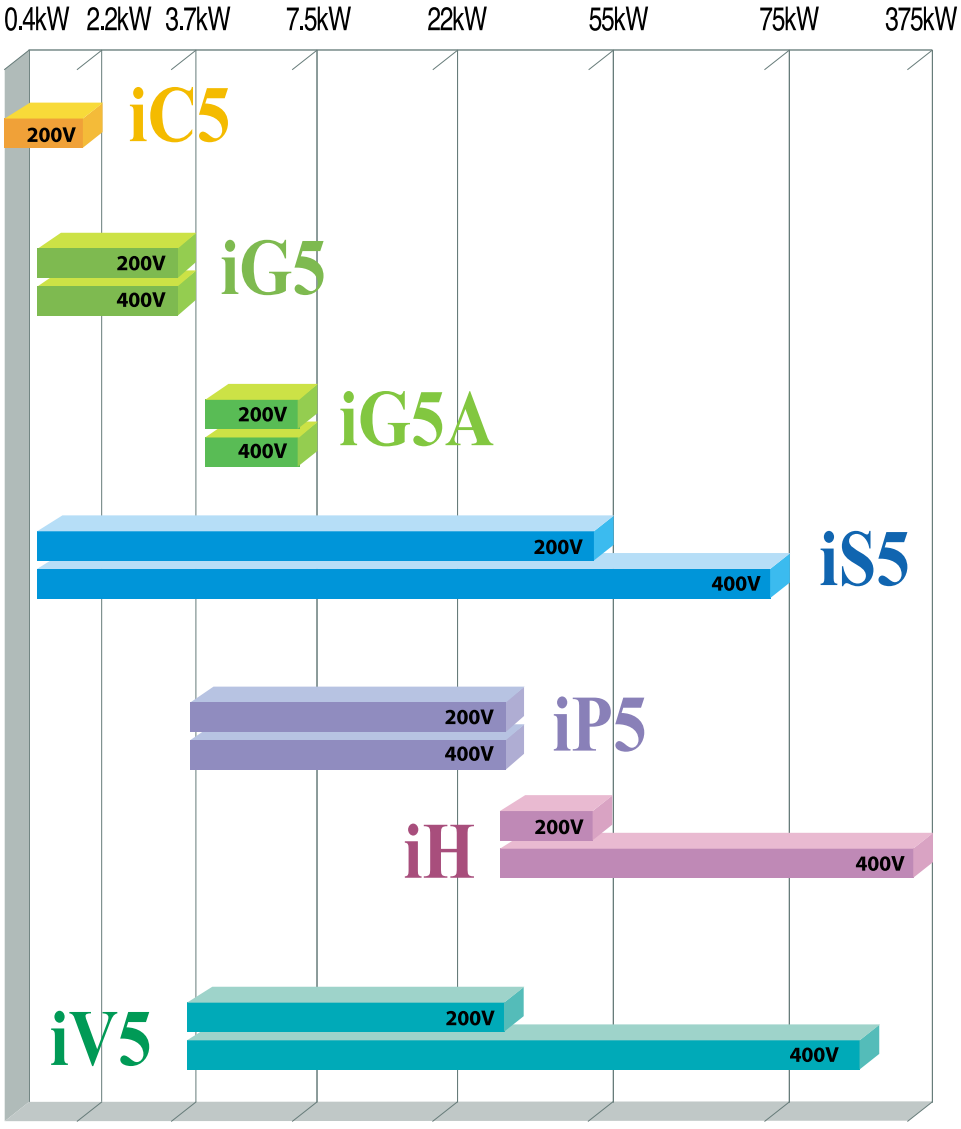
Economy Type Intelligent Model
- 3ø 200V: 5.5kW ~ 7.5kW
- 3ø 400V: 5.5kW ~ 7.5kW

Sensorless/Sensored Vector Type
Standard Model
- 3ø 200V: 0.75kW ~ 55kW
- 3ø 400V: 0.75kW ~ 75kW
- 마크 200/400V: 3.7kW ~ 22kW

VT Exclusive Model
- 3ø 200V: 0.75kW ~ 30kW
- 3ø 400V: 0.75kW ~ 30kW

Middle to High range Model
- 3ø 200V: 30kW ~ 55kW
- 3ø 400V: 30kW ~ 375kW
- 마크 200V: 30kW ~ 55kW
- 마크 400V: 30kW ~ 220kW

High Performance Vector
Exclusive Model
- 3ø 200V: 5.5kW ~ 37kW
- 3ø 400V: 5.5kW ~ 220kW



Leader in Electrics & Automation

Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance.
  Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

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Specifications in this catalog are subject to change without notice due to continuous product development and improvement.

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